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| 10/762,151 | 01/20/2004 | Rolf Bruck | E-80109 | 5945 |

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| EXAMINER | |
|---|---|
| MERKLING, MATTHEW J | |

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/762,151 | BRUCK ET AL. | |
| | Examiner | Art Unit | |
| | Matthew J. Merkling | 1764 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *29 June 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-3 and 5-32* is/are pending in the application.

4a) Of the above claim(s) *21-32* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3 and 5-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1:85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4, 6-15, 17, 18, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Ota et al. (US 5,486,338).

Regarding claim 1, Ota discloses

A honeycomb body (Fig. 2 (3)), comprising:

a casing tube (2);

a honeycomb structure (3) connected to said casing tube (2) and defining an axial portion (S) between said casing tube (2) and said honeycomb structure (3);

an inner sleeve (7) at least partially surrounding said honeycomb structure (3);

an outer sleeve (5) at least partially surrounding said honeycomb structure (3);

said inner (7) and outer (5) sleeves being disposed in said axial portion (Fig. 2); and

a plurality of joining locations (9a, 9b) adjacently interconnecting said honeycomb structure (3), said inner and outer sleeves and said casing tube to form an open spring/damper system from at least one of said sleeves (col. 4 lines 39-46). Ota further illustrates structures of sleeves (5, 7) engaging in one another and adjacent structures of said sleeves bearing at least partially against each other.

Regarding claim 2, Ota further discloses that the honeycomb structure (3) is technically joined to the casing tube (2) (col. 3 line 66- col. 4 line 12).

Regarding claim 3, Ota further discloses a sleeve (5) having structure for compensation of changes in circumference of the honeycomb structure (3) (col. 2 lines 45-59).

Regarding claim 6, Ota further illustrates the inner sleeve (7) connected to the honeycomb structure (3) over an entire circumference of said honeycomb structure (see Fig. 2).

Regarding claim 7, Ota further discloses that the inner sleeve (7) is welded to the honeycomb structure over the entire circumference (col. 4 lines 9-12).

Regarding claim 8, Ota further illustrates a plurality of joining locations (9a, 9b) including inner joining locations (9b) between inner (7) and outer (5) sleeves and outer joining locations (9a) between said outer sleeve (5) and casing tube (2), being distributed uniformly over a circumference of said honeycomb structure (3), and directly adjacent inner and outer joining locations are mutually offset in circumferential direction (see Fig. 2).

Regarding claim 9 and 10, Ota further discloses an example of the thickness of the inner sleeve as being 50μm (col. 5 line 50).

Regarding claim 11, Ota further clearly illustrates (Fig. 3) that the extent in circumferential direction of the joining locations (9a, 9b) is less than 30% of a circumference of said honeycomb structure (3).

Regarding claim 12, Ota further clearly illustrates (Fig. 3) that the extent in circumferential direction of the joining locations (9a, 9b) is less than 20% of a circumference of said honeycomb structure (3).

Regarding claim 13, Ota further illustrates the inner and outer joining locations (9a, 9b) are mutually offset (see Fig. 1) in the axial direction of a honeycomb structure.

Regarding claim 14, Ota further discloses the axial length of the honeycomb structure (3b) as 70mm (col. 5 lines 50-57) and the axial portion as 70mm (see Fig 1) with the honeycomb structure completely enclosed in the casing (2), or 100%.

Regarding claim 15, Ota further discloses sheet metal layer being structured to form channels through which gas can flow (col. 4 lines 15-17).

Regarding claim 17, Ota further discloses the joining locations and sealing structures close off the annular gap between said casing tube (2) and said honeycomb structure (3) (See fig. 1 and 2).

Regarding claim 18, Ota further illustrates one of the inner sleeve (7) and outer sleeve (5) as being mutually axially spaced apart.

Regarding claim 20, Ota discloses

A catalyst carrier body (Fig. 2 (3)), comprising:

a casing tube (2);

a honeycomb structure for carrying catalytic material for purifying an exhaust gas of an internal combustion engine (see title), a honeycomb structure (3) connected to said casing tube (2) and defining an axial portion (S)

between said casing tube (2) and said honeycomb structure (3);

an inner sleeve (7) at least partially surrounding said honeycomb structure (3);

an outer sleeve (5) at least partially surrounding said honeycomb structure (3);

said inner (7) and outer (5) sleeves being disposed in said axial portion (Fig. 2); and

a plurality of joining locations (9a, 9b) adjacently interconnecting said honeycomb structure (3), said inner and outer sleeves and said casing tube to form an open spring/damper system from at least one of said sleeves (col. 4 lines 39-46). Ota further illustrates structures of sleeves (5, 7) engaging in one another and adjacent structures of said sleeves bearing at least partially against each other.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at

> the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ota et al. (US 5,486,338).

Regarding claim 5, Ota, as discussed in claim 3 above, discloses all of the claim limitations in the first embodiment, but fails to teach the structures formed by corrugations in said sleeves.

Ota further discloses in another embodiment that the structure (compensation means) can consist of corrugated section in order to improve the buffer effect (col. 5 lines 7-10).

It would have been obvious to one of ordinary skill in the art at the time of the invention to replace the cushion member sleeve of the first embodiment of Ota with the corrugated sleeve of another embodiment of Ota in order to improve the buffer effect.

5. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ota et al. (US 5,486,338) as applied to claim 15 above, and further in view of Yamada et al. (US 2001/0036427).

Regarding claim 16, Ota, as discussed in claim 15 above, discloses all of the claim limitations, but does not teach the channel density of at least 800 cspi or a sheet metal thickness smaller than 0.025 mm.

Yamada also discloses a honeycomb shaped catalyst carrier used for purifying exhaust gas.

Yamada teaches the channel density of 300-1200 cspi and the sheet metal thickness as low as 0.02-0.1mm (paragraph 10). One skilled in the art would recognize that having a thinner sheet metal thickness and greater channel density allows for a high geometric catalyst surface, which allows for a significantly fast diffusion of exhaust pollutants (as is discussed in US 6,780,805, col. 7 lines 27-42).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the high channel density of 1200 cspi and the low sheet metal thickness of 0.02mm of Yamada into the honeycomb structure of Ota in order to increase catalyst surface and allow for fast diffusion of exhaust pollutants.

6. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ota et al. (US 5,486,338) applied to claim 1 above, and further in view of Wieres (WO 97/15393).

Regarding claim 19, Ota, as discussed in claim 1 above, discloses all of the claim limitations, but fails to teach microstructure on one of the inner or outer sleeves.

Wieres also teaches a honeycomb structure used for purification of exhaust gas.

Weires teaches a sleeve wrapped on the outside of the honeycomb structure (Fig. 1) that incorporates microstructures (5) in order to provide significant mechanical reinforcement of the thin metal sheet (2) (page 5).

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the microstructures of Wieres to the inner sleeve (7) of Ota in order to provide significant mechanical reinforcement to the sleeve.

***Response to Arguments***

*35 USC §112* Rejections

7. Rejections under *USC §112* of claims 11 and 12 have been withdrawn in light of the amendments.

*35 USC §102* Prior Art Rejections

8. Applicant's arguments regarding anticipation of claimed invention have been fully considered but they are not persuasive.

Regarding claim 4 (currently cancelled and encompassed in amended claim 1), Applicant argues that Ota does not teach inner and outer sleeves having structures. The examiner respectfully disagrees. It is the view of the examiner that the Ota teaches the sleeves having structures (curved, flat metal structures) that bear against one another via joining locations (9a), as illustrated in Fig. 2.

*35 USC §103(a)* Prior Art Rejections

9. Applicant's arguments regarding obviousness rejections have been fully considered but they are not persuasive.

Regarding claims 5, 16 and 19, Applicant argues dependency on claim 1 render dependent claims allowable. The examiner respectfully disagrees. As discussed above, arguments and amendments to claim 1 do not render it allowable, therefore the rejections under *USC §103(a)* are still valid.

***Conclusion***

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew J. Merkling whose telephone number is (571) 272-9813. The examiner can normally be reached on M-F 8:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MM

MJM

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